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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): May et al.
Serial No.: 10/652,135
Filing Date: 8/29/2003

Examiner: Tonia Meonske
Group Art Unit: 2183
Atty Docket No.: CML00769D

Title: Method and Apparatus for Elimination of Prolong and Epilog Instructions in a Vector Processor

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

The undersigned submits herewith patents, publications or other information (enclosed herewith and/or listed on the enclosed list of references form) of which he or she is aware, which he or she believes is relevant and may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR §1.56. The order of listing of the references on the attached form and any appendix hereto is without regard for relative relevance to the present invention.

This Information Disclosure Statement is submitted:

- ☐ under 37 CFR §1.97(a), or
(Accompanies the new patent application submitted herewith.)
- ☒ under 37 CFR 1.97(b), or
(Within three months of filing national application; or date of entry of international application; or before mailing date of first office action on the merits; whichever occurs last.)
- ☐ under 37 CFR 1.97(c) together with either a:
☐ Statement under 37 CFR 1.97(e), or
☐ a \$180.00 fee under 37 CFR 1.17(p), or
(After the CFR 1.97(b) time period, but before final action or notice of allowance, whichever occurs first.)
- ☐ under 37 CFR 1.97(d) together with a:
☐ Statement under 37 CFR 1.97(e), and
☐ a \$180.00 fee set forth in 37 CFR 1.17(p).
(Filed after final action or notice of allowance, whichever occurs first, but before payment of the issue fee.)
- ☒ Applicant(s) submit herewith Form PTO 1449-Information Disclosure Citation together with required copies, of patents, publications or other information of which applicant(s) are aware, which applicant(s) believe(s) may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.56.
- ☐ PRIOR APPLICATIONS References identified with an asterisk (*) in the enclosed PTO Form 1449, were disclosed in prior Patent Application No. _____, filed _____, now U.S. Patent No. _____, and, as such, copies thereof are not included pursuant to the provisions of 37 CFR 1.98(d).

☐ **FOREIGN LANGUAGE DOCUMENTS** A concise explanation of the relevance of foreign language patents, foreign language publications and other foreign language information listed on PTO Form 1449, as presently understood by the individual(s) designated in 37 CFR 1.56(c) most knowledgeable about the content is given on the attached sheet, or where a foreign language patent is cited in a search report or other action by a foreign patent office in a counterpart foreign application, an English language version of the search report or action which indicates the degree of relevance found by the foreign office is listed on Form PTO 1449 and is enclosed herewith.

☒ **FEE AUTHORIZATION**

At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account **50-0375** pursuant to 37 CFR 1.25.

While the information and references disclosed in this Information Disclosure Statement may be "material" pursuant to 37 CFR §1.56, this statement does not constitute an admission that any patent, publication or other information referred to therein is "prior art" or "material" to this invention or any application for patent for this invention.

In accordance with 37 CFR §1.97, the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that other information that may be material as defined in 37 CFR §1.56 exists. It is submitted that the Information Disclosure Statement is in compliance with 37 CFR §1.97 and §1.98 and MPEP §609. In addition, the Examiner is requested to conduct a thorough independent search in order to bring the best references available forward in this application.

It is requested that the information disclosed herein be made of record in this application.

Express Mail #

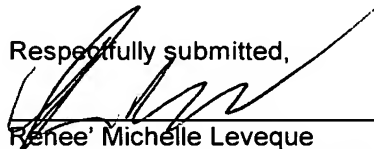
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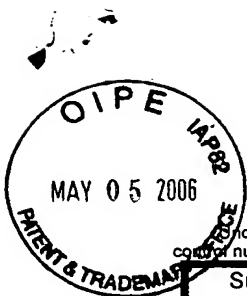
Date of Deposit: May 3, 2006

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Respectfully submitted,


Renee' Michelle Leveque
Attorney/Agent for Applicant(s)
Reg. No. 36,193
Date: May 3, 2006
Telephone No.: 301-668-3073



PTO/SB/08A (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

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Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(use as many sheets as necessary)

Sheet 1 of 2

Complete if Known

| | |
|------------------------|----------------|
| Application Number | 10/652,135 |
| Filing Date | 8/29/2003 |
| First Named Inventor | May |
| Art Unit | 2183 |
| Examiner Name | Meonske, Tonia |
| Attorney Docket Number | CML00769D |

U.S. PATENT DOCUMENTS

| Examiner Initials* | Cite No. ¹ | Document Number | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|-----------------------|--------------------------|--|--------------------------------|--|---|
| | | Number - Kind Code ² (if known) | | | |
| | | 3,718,912 | Feb-73 | Hasbrouck et al. | |
| | | 4,128,880 | Dec-78 | Cray Jr. | |
| | | 4,744,043 | May-88 | Kloker | |
| | | 4,760,545 | Jul-88 | Inagami et al. | |
| | | 4,807,183 | Feb-89 | Kung et al. | |
| | | 4,825,361 | Apr-89 | Omoda et al. | |
| | | 4,918,600 | Apr-90 | Harper et al. | |
| | | 5,206,822 | Apr-93 | Taylor | |
| | | 5,367,494 | Nov-94 | Shebanow et al. | |
| | | 5,390,352 | Feb-95 | Kinoshita | |
| | | 5,450,607 | Sep-95 | Kowalczyk et al. | |
| | | 5,495,617 | Feb-96 | Yamada | |
| | | 5,652,909 | Jul-97 | Kodosky | |
| | | 5,697,788 | Dec-97 | Ohta | |
| | | 5,717,947 | Dec-98 | Gallup et al. | |
| | | 5,719,998 | Feb-98 | Ku et al. | |
| | | 5,734,863 | Mar-98 | Kodosky et al. | |
| | | 5,764,787 | Jun-98 | Nickerson | |
| | | 5,790,877 | Aug-98 | Nishiyama et al. | |
| | | 5,805,614 | Sep-98 | Norris | |
| | | 5,821,934 | Oct-98 | Kodosky et al. | |
| | | 5,881,257 | Mar-99 | Glass et al. | |
| | | 5,881,263 | Mar-99 | York et al. | |
| | | 5,887,183 | Mar-99 | Agarwal et al. | |
| | | 5,893,143 | Apr-99 | Tanaka et al. | |
| | | 5,936,953 | Aug-99 | Simmons | |

FOREIGN PATENT DOCUMENTS

| Examiner Initials* | Cite No. ¹ | Foreign Patent Document | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T ⁶ |
|-----------------------|--------------------------|---|--------------------------------|--|---|----------------|
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| | | | | Application Number | 10/652,135 |
| | | | | Filing Date | 8/29/2003 |
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| | | | | Art Unit | 2183 |
| | | | | Examiner Name | Meonske, Tonia |
| | | | | Attorney Docket Number | CML00769D |
| Sheet | 2 | of | 2 | | |

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| Substitute for form 1449B/PTO | | Complete if Known | |
| | | Application Number | 10/652,135 |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) | | Filing Date | 8/29/2003 |
| | | First Named Inventor | May |
| | | Art Unit | 2183 |
| | | Examiner Name | Meonske, Tonia |
| | | Attorney Docket Number | CML00769D |
| Sheet | 1 | of | 1 |

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | |
|---|----------|---|----------------|
| Examiner Initials* | Cite No. | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² |
| | | LAM, M., Software Pipelining: An Effective Scheduling Technique for VLIW Machines, Proceedings of the SIGPLAN '88 Conference on Programming Language Design and Implementation, Atlanta, Georgia, June 22-24, 1988, pp. 318-328 | |
| | | LEE, T. et al., A Transformation-Based Method for Loop Folding, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, Vol. 13, No. 4, April 1994, pp. 439-450 | |
| | | KAVI, K.M. et al., A Formal Definition of Data Flow Graph Models, IEEE Transactions on Computers, Vol C-35, No. 11, Nov 1986, pp. 940-948 | |
| | | COOPER, K.D. et al., Efficient Computation of Flow Insensitive Interprocedural Summary Information, SIGPLAN Notices, Vol. 19, No. 6, June 1984, pp. 247-258 | |
| | | STRONG, H.R., Vector Execution of Flow Graphs, Journal of the Association for Computing Machinery, Vol 39, No. 1, January 1983, pp. 186-196 | |
| | | AIKEN, A. et al., Resource-Constrained Software Pipelining, IEEE Transactions on Parallel and Distributed Systems, Vol. 6, No. 12, December 1995, pp. 1248-1270 | |
| | | WULF, WILLIAM A. "Evaluation of the WM Architecture." Proceedings of the 19 th Annual International Symposium on Computer Architecture: 1992, pp. 382-390, ACM 0-89791-509-7/92/0005/0382. | |
| | | TALLA, D., Architectural techniques to Accelerate Multimedia Applications on General-Purpose Processors, Dissertation, August 2001, pp. 94-125 | |
| | | TALLA, D., Bottlenecks in Multimedia Processing with SIMD Style Extensions and Architectural Enhancements, IEEE Transactions of Computers, August 2003, pp. 1015-1031, Vol. 62, No. 8, IEEE | |
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